

### **AMENDMENTS TO THE CLAIMS**

1. **(PREVIOUSLY PRESENTED)** A hydration monitor comprising a temperature sensor for measuring a subject's core body temperature and a processor, the processor being arranged to accept measurements from the temperature sensor and calculate a hydration level in dependence on changes in the measured core body temperature.
2. **(PREVIOUSLY PRESENTED)** A hydration monitor as claimed in claim 1, comprising an earpiece worn on the ear and a remote unit, the temperature sensor being positioned in the earpiece for measuring the core body temperature via the subject's tympanic membrane.
3. **(ORIGINAL)** A hydration monitor as claimed in claim 2, wherein the temperature sensor comprises a thermopile.
4. **(PREVIOUSLY PRESENTED)** A hydration monitor as claimed in claim 2, wherein the earpiece further comprises a transmitter, the remote unit including the processor, output means and a receiver, the earpiece being arranged to communicate measurements to the processor via the transmitter and receiver, the processor being arranged to provide an indication of the hydration level via the output means.
5. **(PREVIOUSLY PRESENTED)** A hydration monitor as claimed in claim 4, wherein the transmitter and receiver communicate wirelessly.
6. **(PREVIOUSLY PRESENTED)** A hydration monitor as claimed in claim 4, wherein the transmitter and receiver are transceivers.

7. **(PREVIOUSLY PRESENTED)** A hydration monitor as claimed in claim 4, wherein the remote unit comprises a selected one of: a wristwatch, a personal digital organiser, a mobile telephone, a personal computer or medical diagnostic and/or monitoring apparatus.
8. **(PREVIOUSLY PRESENTED)** A hydration monitor as claimed in claim 4, wherein the output means includes one or more of a display and a speaker.
9. **(PREVIOUSLY PRESENTED)** A hydration monitor as claimed in claim 1, further comprising a memory for storing hydration level and/or core body temperature over time.
10. **(PREVIOUSLY PRESENTED)** A hydration monitor as claimed in claim 1, wherein the processor is arranged to determine a hydration level by the following formula: 
$$\frac{[(\text{core body temperature current} - \text{core body temperature normal}) \times \text{subject's weight}]}{(\text{factor of ambient compensation} \times 100)}$$
11. **(ORIGINAL)** A hydration monitor as claimed in claim 10, wherein the factor of ambient compensation is between 0.1 and 0.23 and is determined in dependence on the temperature of the environment surrounding the subject.
12. **(PREVIOUSLY PRESENTED)** A hydration monitor as claimed in claim 1 arranged to operate repeatedly at predetermined time intervals.
13. **(PREVIOUSLY PRESENTED)** A hydration monitor as claimed in claim 1, wherein the processor is arranged to generate an alarm upon determination of a hydration level below a predetermined level.

14. **(CURRENTLY AMENDED)** A method of measuring hydration of a subject ~~in a hydration monitor comprising the steps of~~ wherein the following steps are performed with a hydration monitor:
- a. measuring an initial core body temperature of the subject;
  - b. measuring a subsequent current core body temperature of the subject;
  - c. subtracting the initial core body temperature from the subsequent core body temperature, thereby obtaining a difference;
  - d. multiplying the difference by the subject's weight, thereby obtaining a multiplied difference;
  - e. dividing the multiplied difference by a factor of ambient compensation, thereby obtaining an indication of the subject's hydration level;
  - f. providing output indicative of the subject's hydration level from the hydration monitor to the subject.
15. **(ORIGINAL)** A method as claimed in claim 14, wherein the measurements are taken from the subject's tympanic membrane.
- 16-18. **(CANCELED)**
19. **(CURRENTLY AMENDED)** A hydration monitor including:
- a. a wearable temperature sensor ~~for measuring~~ configured to measure a subject's core body temperature;
  - b. a processor ~~calculating~~ configured to calculate the subject's hydration level from the measured core body temperature, without reliance on any measured electrical properties of the subject's body.
20. **(PREVIOUSLY PRESENTED)** The hydration monitor of claim 19 wherein the wearable temperature sensor includes an earpiece wearable on the ear.

21. **(PREVIOUSLY PRESENTED)** The hydration monitor of claim 20 wherein the only measurements obtained from the subject are obtained from the earpiece.
22. **(PREVIOUSLY PRESENTED)** The hydration monitor of claim 19 wherein the processor calculates the subject's hydration level in reliance on changes in measured core body temperature over time.
- 23-25. **(CANCELED)**
26. **(NEW)** A portable hydration monitor including:
- a. a wearable temperature sensor having:
    - (1) an earpiece worn on the ear for measuring a subject's core body temperature via the subject's tympanic membrane, and
    - (2) a transmitter configured to communicate said measured core body temperature; and
  - b. a remote unit to be carried or worn by the subject and including a receiver, a processor, and an output device wherein:
    - (1) the receiver is configured to receive the communicated core body temperature from the transmitter and communicate the received core body temperature to the processor,
    - (2) the processor is configured to:
      - i. calculate the subject's hydration level from the measured core body temperature in substantially real time, and
      - ii. cause an indication of the hydration level to be output via the output device.
27. **(NEW)** The portable hydration monitor of claim 26, wherein the earpiece includes one or more channels to allow ambient air to flow around the subject's ear canal.

28. **(NEW)** The portable hydration monitor of claim 26, wherein the earpiece includes a sound generator, the portable hydration monitor being arranged to cause the sound generator to sound an alarm when the calculated hydration level is below a predetermined threshold.